

SUN BEARS:
Global Status Review & Conservation Action Plan

2019-2028

Abridged Version

Bear Specialist Group

CONSERVATION PLANNING SPECIALIST GROUP
Changing the Future for Wildlife

FREE THE BEARS

IUCN

SSC
Species Survival Commission

TRAFFIC
the wildlife trade monitoring network

For further information about this strategy and its implementation, please contact the Sun Bear Action Plan Implementation Coordinator: sunbearactionplan@gmail.com

Cover photo: Sun bear, *Helarctos malayanus*. Credit: Free the Bears

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Resources:

- *Proceedings from the 1st International Symposium on Sun Bear Conservation & Management*
- *Abridged version of Sun bears: Global status review and conservation action plan, 2019-2028*
- *Unabridged version of Sun bears: Global status review and conservation action plan, 2019-2028*

Available from:

- *Free the Bears https://freethebears.org/pages/publications-press-resources*
- *IUCN SSC Conservation Planning Specialist Group http://www.cpsg.org/document-repository*
- *IUCN SSC Bear Specialist Group http://www.globalbearconservation.org/*

Free the Bears is an international animal welfare and wildlife conservation charity headquartered in Australia. Free the Bears works with governments and non-governmental partners to build, manage and sustain bear sanctuaries and field programmes aimed at ending the suffering of captive bears whilst protecting wild bears across Southeast Asia and India. As part of its mission to protect, preserve and enrich the lives of bears throughout the world Free the Bears has supported the rescue of over 900 bears and currently provides care for over 200 bears in Southeast Asia, including 80 rescued sun bears in the Cambodian Bear Sanctuary, the world's largest sanctuary for sun bears.

The IUCN SSC **Bear Specialist Group** (BSG) is one of more than 140 Specialist Groups established by the Species Survival Commission (SSC), within the International Union for the Conservation of Nature (IUCN). The goal of the BSG is to promote the conservation of bears and their natural habitats across their distribution worldwide. The BSG is comprised of ~180 members including professional biologists and conservationists from governments, non-governmental organisations (NGOs), universities, museums, zoos and other captive facilities. The BSG is not an advocacy or animal welfare organisation. The purpose of the BSG is to pursue science-based conservation of bears.

The IUCN SSC **Conservation Planning Specialist Group** (CPSG) is a global network of conservation professionals dedicated to saving threatened species by increasing the effectiveness of conservation efforts worldwide. For over 30 years, CPSG has accomplished this using scientifically sound, collaborative planning processes that bring together people with diverse perspectives and knowledge to catalyse positive conservation change. CPSG provides species conservation planning expertise to governments, other SSC Specialist Groups, zoos and aquariums, and other wildlife organisations.

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development. TRAFFIC is a strategic alliance of WWF and IUCN. By co-operating with government departments, industry and civil society organisations, TRAFFIC is helping to bring about transformative change across both wildlife legislation and consumer attitudes.

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#savesunbears

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FOREWORD



By Jon Paul Rodríguez,

Chair of the IUCN Species Survival Commission

Biodiversity is critical to the functioning of ecosystems and the health of the planet, but it is facing unprecedented threats –– from habitat destruction, invasive species, overexploitation, pollution and climate change. The IUCN Species Survival Commission (SSC) is a global network of over 8,500 experts working together to halt the decline in biodiversity and ensuring that SSC is an unmatched source of information and advice to influence conservation outcomes. In addition to assessing the status of species across the globe and the drivers of biodiversity loss, taxa-specific Specialist Groups within the SSC work to identify the conservation actions required to reduce or prevent species extinctions. Most conservation actions occur at a local or country level, but for species with wide geographical ranges, the strategic design and coordination of actions must occur at a range-wide scale. Strategic conservation planning is a key priority for the SSC as it allows us to invest our limited resources wisely for the greatest impact. The Conservation Planning Specialist Group (CPSG) has a mandate to increase the quantity and effectiveness of planning across the SSC network, which we also see as helping to deliver on Target 12 (on preventing the extinction of threatened species) of the Convention on Biological Diversity. By taking a collaborative, inclusive and science-based approach to planning, we can deliver the most effective conservation action to protect future generations of threatened species.

The challenge is to ensure that conservation planning translates into action. Participation of all relevant stakeholders –– government, academia, civil society and the private sector –– is key to achieving successful conservation outcomes. This is of particular importance for species whose range spans across several countries, where the threats, socio-economic factors, and the political context vary. Moreover, the inclusion of diverse stakeholders in the planning process is more likely to yield innovative and workable ideas, as well as support during implementation.

Southeast Asia is a recognised hotspot for species declines. The sun bear *(Helarctos malayanus)* is an endemic, forest-dependent umbrella species of Southeast Asia, whose populations are under increasing threats from forest loss and poaching: conservation strategies to aid this species are likely to benefit many others in the region. Hence, the development of a conservation action plan for sun bears, detailed here, should be relevant to many conservation activities in the region.

This plan was developed following the 1st International Symposium on Sun Bear Conservation & Management, and a subsequent action planning workshop, facilitated by the CPSG in collaboration with the IUCN SSC Bear Specialist Group. The symposium and planning workshop brought together sun bear experts, field researchers, conservationists and government representatives from throughout the sun bear's range and beyond, to share the latest information on this threatened species, and to determine which actions are most urgently needed and most likely to achieve its long-term conservation.

The result of those efforts is a comprehensive strategy that will guide conservation of this species throughout the next ten years. In a world where resources for conservation are severely limited, creative and intelligent strategies will determine our success in averting biodiversity loss. I encourage all responsible government agencies, researchers, donors and practitioners to examine the recommended actions summarised in this document and put them to practice.



TABLE OF CONTENTS

ACKNOWLEDGEMENTS iii
FOREWORD iv
TABLE OF CONTENTS v
EXECUTIVE SUMMARY 1
SECTION 1. INTRODUCTION 4
Background 4
Audience 5
Implementation 6
SECTION 2. SUN BEAR DISTRIBUTION 8
SECTION 3. THE SUN BEAR CONSERVATION ACTION PLAN 9
OVERVIEW 10
VISION & GOALS 11
GOALS, OBJECTIVES AND ACTIONS (ABRIDGED) 12

EXECUTIVE SUMMARY

Need for a Conservation Action Plan for Sun Bears

Of the eight species of bears in the world, six (75%) are globally threatened with extinction (listed as Vulnerable on the IUCN Red List of Threatened Species™). It is not coincidental that four of these threatened species range into the tropics, where the threats are particularly severe. The chief threats to bears in the tropics include forest clearing and conversion, road building, poaching, and conflict with people. These threats are amplified because they act synergistically: for example, roads and shrinking forest patches provide greater access to poachers; additionally, diminished or degraded habitat reduces food availability for bears and increases the interface with humans and agriculture, which together prompt bears to seek human-related foods and increase their likelihood of being killed as a consequence.



Participants in the 1st International Symposium on Sun Bear Conservation & Management, held in Kuala Lumpur, Malaysia from the 4th – 6th September 2017. Credit: Free the Bears/Lim Thona

Where should we start in addressing these threats? Which are most consequential, which are most practical to solve, and what process should we use to set priorities for the conservation of these species? What do we want the future to look like?

Here we answer these questions for the sun bear *(Helarctos malayanus)*. This species has been the focus of only a handful of studies in the wild –– beginning just 20 years ago –– and has attracted little world attention in terms of its conservation, despite being a charismatic bear. Yet it is believed to be in steep decline in many parts of its range due to loss, degradation and fragmentation of its forested habitat, combined with direct killing. The species ranges only through Southeast Asia, in 10 or 11 countries, from northeastern India east to Vietnam, and south through the Malaysian Peninsula and into Sumatra and Borneo. Within this range there are still many areas with suitable habitat where its existence is uncertain; it was thought to be extirpated in Bangladesh, but was recently rediscovered in a small patch in the south; it is unknown whether any populations persist in southern China.

Not only is the status uncertain, but many looming questions about the main drivers of this species' decline remain unanswered or confusing. This obviously complicates formulation of a conservation strategy. For example, whereas some studies have indicated that sun bears are reliant on primary forest, a number of recent camera trapping studies (not directed at sun bears) have detected them at relatively high rates in secondary (regenerating) forests. In the southern parts of their range, widespread forest conversion to oil palm *(Elaeis guineensis)* has been a paramount concern. Whereas these expansive plantations have clear adverse effects on sun bears insofar as reduced availability of useable space, shade, cover, and food diversity, it has been shown that bears consuming abundant oil palm fruits along plantation edges are often atypically heavy; conversely, in these open areas, they are also more vulnerable to being killed by people. Some direct killing of sun bears may occur incidentally while hunters are seeking other species, with guns or snares, but targeted killing also occurs. Sun bear cubs are sold as pets, and the gallbladder/bile of this species is a valuable commodity that is illegally traded on a global scale.



Sun bear, Helarctos malayanus, at the Bornean Sun Bear Conservation Centre. Credit: BSBCC/Chiew Lin May

Ironically, though, whereas Asiatic black bears *(Ursus thibetanus)* possess a unique compound in the bile with proven medicinal benefits for humans, sun bear bile is dominated by a different bile acid, which is not unique to bears.

Further complicating these issues is the fact that monitoring of sun bear populations is almost nonexistent. A few efforts have been made to assess density, relative density, or presence/absence from camera trapping, sign surveys, and interviews of local people. But no real monitoring programme has been implemented. Therefore, evaluations of population trend have generally been gleaned from expert opinions and interviews with local people, or a subjective assessment of the threats and how they must be affecting the bears. Consequently, even if conservation programmes were implemented, it would be difficult to ascertain their effectiveness with such sparse baseline data.

Process of Plan Development

With this as a backdrop, the IUCN SSC Bear Specialist Group, Free the Bears, and TRAFFIC Southeast Asia organised the 1st International Symposium on Sun Bear Conservation & Management to gather the collective knowledge and opinions from sun bear experts relevant to the conservation of this species. The 3-day symposium, which was held in Kuala Lumpur, Malaysia, September 4–6, 2017, brought together 100 delegates from over 50 organisations, including researchers in the field (although there are very few), conservationists, people working in captive care centres with sun bears, and governmental representatives.

Building on the work from the Symposium, 25 delegates worked collaboratively over the following 2 days to draft a 10-year range-wide conservation action plan. In accordance with IUCN guidelines, as many country-specific representatives were included in this process as possible, within budgetary and logistical constraints. Moreover, we followed the One Plan Approach of the IUCN SSC Conservation Planning Specialist Group (CPSG) in terms of integrating *in situ* and *ex situ* components. A small team of editors, with later input from the wider group of symposium participants, worked for over a year to develop the final document.

The document includes an extensive but not exhaustive status review. This is meant to provide justification for the conservation actions, including research needs, especially where information is lacking or conflicting. We cited work that seemed to be useful for the purposes here, relying mainly on peer-reviewed literature; we did not attempt to find or cite every paper relevant to every point.

Components of the Plan

The range-wide conservation action plan outlines a strategic approach for priority actions over the period 2019–2028. These actions will lay the groundwork to help achieve a long-term vision for the future of sun bears in which: wild bears are an ecologically functioning component of natural ecosystems, present in all 11 range countries, coexisting with and appreciated by people, and no longer threatened; captive bears are maintained under high standards and contributing to conservation; and the conservation of this species aids in conservation of other species and ecosystems.

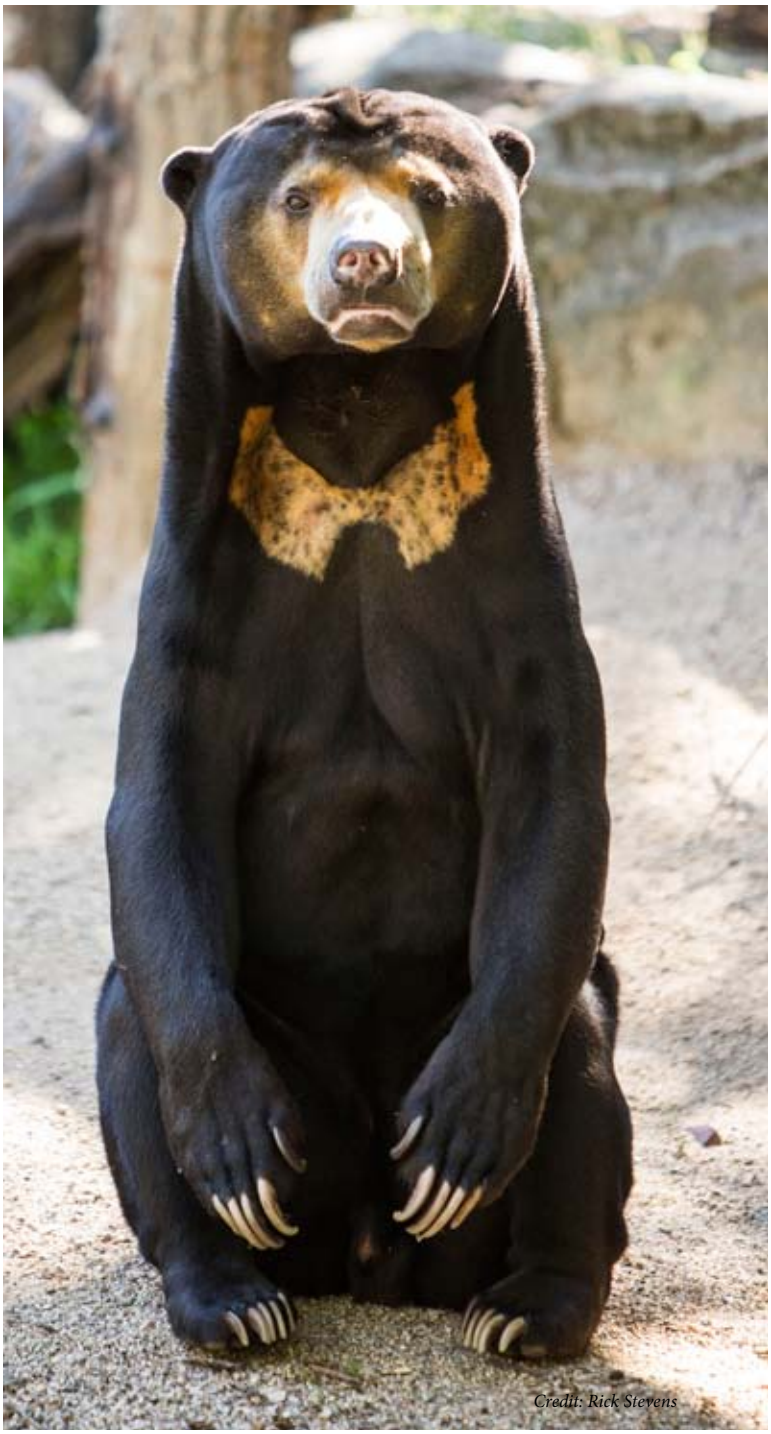
The plan details 19 objectives and 63 actions aimed at attaining 5 overarching goals: (1) eliminating illegal exploitation; (2) protecting and restoring habitats and populations; (3) devising and employing reliable monitoring methods; (4) maximising *ex situ* contributions to conservation; and (5) increasing cross-sectoral support and collaboration for sun bear conservation.

Many of the objectives (14) involve reviewing, compiling, and interpreting existing data, or conducting research to obtain new data (7), so as to better understand the issues and the likelihood of success of the possible solutions. Alongside filling these knowledge gaps, the plan proposes a series of direct actions (6), prioritisation of actions (4), or initiatives to motivate actions by others (15). Each action in the plan has an associated list of people, organisations, or types of organisations responsible for carrying it out, a general timeline, a list of what we already have to aid in performing the action and what we need, and indicators of progress.

Implementation of the Plan

Implementation of this plan over the next ten years is the initial step in reaching the long-term vision for the conservation of this species. The plan will be coordinated by a Sun Bear Action Plan Implementation Task Force, which will be housed under the Sun Bear Expert Team of the IUCN SSC Bear Specialist Group. The task force will comprise both issue (goal)-based and range-country focal points who will serve as contacts for anyone wishing to conduct or assist with recommended actions. The Task Force will have an appointed coordinator, supported for the first two years by Free the Bears.

This is the first global conservation action plan for a terrestrial species of bear. Inevitably, implementation of this plan will require adoption by range countries, and some range countries may develop companion country-specific plans. Some countries in Asia have already adopted country-specific conservation action plans for other species of bears (Taiwan and India, both in 2012), but thus far these have spurred few actual actions. It is our hope that by starting globally, with a comprehensive plan, and with the commitment of a dedicated group to implement this plan, we can coordinate a set of actions that will drastically improve the status of this species as well as our understanding of it.



Credit: Rick Stevens

SECTION 1

INTRODUCTION

Background

Sun bears *(Helarctos malayanus)* are often referred to as the least-known or most 'forgotten' of all bear species. The first field studies on this species were only started in 1997. In part, this can be attributed to the relative difficulty in conducting ecological field research on this rather rare and elusive forest-dwelling species, which lives in areas that are tough to work in and often hard to get to. Many field techniques used for other bear species have shown limited success with sun bears because they are hard to capture (they are wary of traps and the remoteness of field sites restricts safe placement



Rescued sun bear at the Cambodian Bear Sanctuary. Credit: Free the Bears

of traps), they are difficult to radio-collar, and no reliable technique has yet been developed to snag their short hair (for DNA-based population estimates). Sign surveys have been confounded because much of their range overlaps with Asiatic black bears (*Ursus thibetanus)*, and often the sign of these two species cannot be reliably distinguished (unless very fresh). Although sign transects can be used to quickly confirm sun bear presence in the Sundaic part of their range (i.e., Malay Peninsula, Borneo, and Sumatra), where other bear species do not occur. Sun bears are rarely seen, and even then are confused with Asiatic black bears, so interviews with local people have rarely yielded definitive information. Recently, camera-trapping has provided more reliable information on presence (sometimes in places they were thought to have been extirpated), occupancy, density, habitat selection, response to human activities, and use of plantations. However, because this species is rarely the direct focus of camera trapping studies, the data are commonly "by-catch" results from studies of more high-profile species, such as tigers *(Panthera tigris)* and elephants (*Elephas maximus*). Likewise, conservation efforts for sun bears often tend to derive as by-products of initiatives directed primarily at these other species.

In September 2017, sun bears were front and centre when one hundred researchers, conservationists, government representatives, population managers, and managers of captive facilities from across the globe convened in Kuala Lumpur, Malaysia, for the 1st International Symposium on Sun Bear Conservation & Management. The three-day symposium was co-hosted by Free the Bears, the IUCN SSC Bear Specialist Group, and TRAFFIC in Southeast Asia.

Although sun bears remain the least-studied bear species, research and conservation efforts have advanced greatly in the past few years and the symposium achieved what would have been inconceivable ten years ago: over 30 presentations and more than 20 hour-long panel discussions and workshop sessions dedicated solely to the conservation and management of sun bears. A diverse array of topics was covered, including: updates to the IUCN Red List Assessment and range map; genetic analyses; assessing wild sun bear populations; health and welfare; thermoregulation and metabolic rates in captive sun bears; trade and use of sun bears in traditional medicine; education and behaviour change; status review and threat assessment of *ex situ* sun bear populations; and habitat requirements of *in situ* populations.

Among the participants were representatives from, or those knowledgeable about, all sun bear range states, except China, which has just one recent record of an individual barely over the border from Myanmar (Li et al. 2017). Sixty percent of participants are currently involved in sun bear conservation projects, while 43% are involved in sun bear research. Participants represented both *in situ* and *ex situ* sun bear populations and were affiliated with several international conservation and management bodies, including: the IUCN SSC Bear Specialist Group (BSG); BSG Sun Bear Expert Team; BSG Captive Bears Expert Team; regional zoological associations (EAZA, AZA and ZAA); and regional Bear Taxon Advisory Groups.

The symposium was designed to capture the collective knowledge and expertise of those in attendance in order to inform the development of this conservation strategy. A two-day conservation planning workshop was held immediately after the symposium, facilitated by the IUCN SSC Conservation Planning Specialist Group (CPSG). The planning process followed the CPSG's One Plan Approach, which promotes integrated *in situ* and *ex situ* species conservation planning. The approach considers all populations of the species, inside and outside their natural range, under all conditions of management, and engages all responsible parties from the very start of any species conservation planning process (Byers et al. 2013).

The 25 participants of the planning workshop were divided into thematic working groups tasked with developing conservation actions related to: Trade and consumption; Habitat protection and improvement; Population monitoring; *Ex situ* management; and cross-sector collaboration. First, each group listed key threats related to their topic, which were informed by the discussions during the symposium. Then, each group made a list of objectives that would reduce these threats, over the next 5–10 years. Finally, specific actions required to achieve the objectives were identified. For each action, working groups detailed what we had available to start, what we still needed, and who would likely do the work.

Results of the planning workshop were extensively fleshed out to create a draft document, which underwent a series of reviews and editing over several months, first by a core editing team, then each themed section was reviewed by the members of the relevant working group, and finally the draft action plan was reviewed by participants of the symposium plus other sun bear biologists and conservationists who were unable to attend the symposium.

This action plan for sun bears is the first range-wide conservation action plan for any of the world's terrestrial bear species. It is intended to guide targeted conservation interventions, as recommended by the IUCN Species Survival Commission, and serve as a guide for development of national or local sun bear conservation action plans. Despite the diversity of threats, and the variety of opinions and solutions that existed amongst participants, everyone was united by a common desire to see the sun bear survive and thrive in its natural environment as an important part of the forest ecosystem.

In addition to recommended actions, this document contains comprehensive information on the status of and threats to *in situ* and *ex situ* sun bear populations, details of national focal points for the implementation of the action plan, and a map of current sun bear-related projects. It is intended to be used as a freely available resource and reference document for all those interested in the conservation of sun bears.

Audience

The sun bear's range stretches across eleven countries. Sun bears live in a host of different protected areas, in forested areas under varying management levels outside protected areas, and along the borders of plantations. It was not possible to involve all relevant local stakeholders (e.g., all national governments, protected area staff, industry representatives, non-governmental organisations, community groups, *ex situ* facility representatives) in the planning workshop. However, it is intended that this initial broad-based planning process will trigger further national and local planning in which key locally-based stakeholders will have an opportunity to define local actions that align with the overall strategy presented here. With this in mind, this range-wide plan includes both broad action recommendations designed for further consideration and delegation by in-country agencies as well as more specific action recommendations already committed to by those present at the workshop.

This document is intended as a resource to be used by:

- workshop participants, as a record of the actions, initiatives and collaborations discussed;
- range state governmental agencies, to help guide and inform the development of national or local action plans and initiatives;
- individuals, institutions and *ex situ* facilities working with sun bears, to help inform their priorities;
- non-governmental conservation organisations and community groups, to guide and inform their priorities and work plans;
- the IUCN SSC Bear Specialist Group, to help in directing conservation-related research and actions, and tracking and supporting progress with the directions and priorities agreed for sun bears;
- donor organisations, to guide priority actions for funding support.

Implementation

The implementation of actions in this plan will be monitored and coordinated by an Implementation Task Force comprised of Focal Point persons for each range state and each of the five working groups from the conservation planning workshop. The Focal Points will serve as contacts for anyone conducting or wishing to conduct recommended actions within range states or working group themes. The Focal Points will report annually to the Action Plan Implementation Coordinator for the duration of the action plan (2019 – 2028).

The Implementation Coordinator will be recruited from within the IUCN SSC Bear Specialist Group's Sun Bear Expert Team which has a mandate to coordinate global sun bear conservation. The coordinator will serve a term coinciding with that of the Specialist Group membership and will report annually to the Bear Specialist Group Co-chair(s). An implementation progress report will be submitted annually by the Implementation Coordinator for publication in International Bear News, the newsletter of the Bear Specialist Group and the International Association for Bear Research and Management (https://www.bearbiology.com/publications/iba-newsletter/).

The various actions in the plan relate to both wild and captive sun bears and will be implemented by a wide range of people and organisations, including students, university departments and researchers, government departments, and non-government organisations. The Implementation Task Force will act as a central hub for this diverse array of activities, keeping track of current and past projects conducted under the umbrella of the action plan.

Individuals and organisations carrying out projects and actions are encouraged to notify and communicate their progress to the Implementation Task Force. The Sun Bear Expert Team has representatives in most sun bear range countries, and these representatives along with other Focal Points will be responsible for monitoring and maintaining communication with projects occurring in their respective countries.



Credit: Wildlife Reserves Singapore

SUN BEAR ACTION PLAN IMPLEMENTATION TASK FORCE (2019 – 2020)



SECTION 2

SUN BEAR DISTRIBUTION

RESIDENT RANGE STATES:

Bangladesh; Brunei Darussalam; Cambodia; India; Indonesia; Laos; Malaysia; Myanmar; Thailand; Vietnam

PRESENCE DETECTED BUT RESIDENCY UNCERTAIN:
China

EXTIRPATED:
Singapore

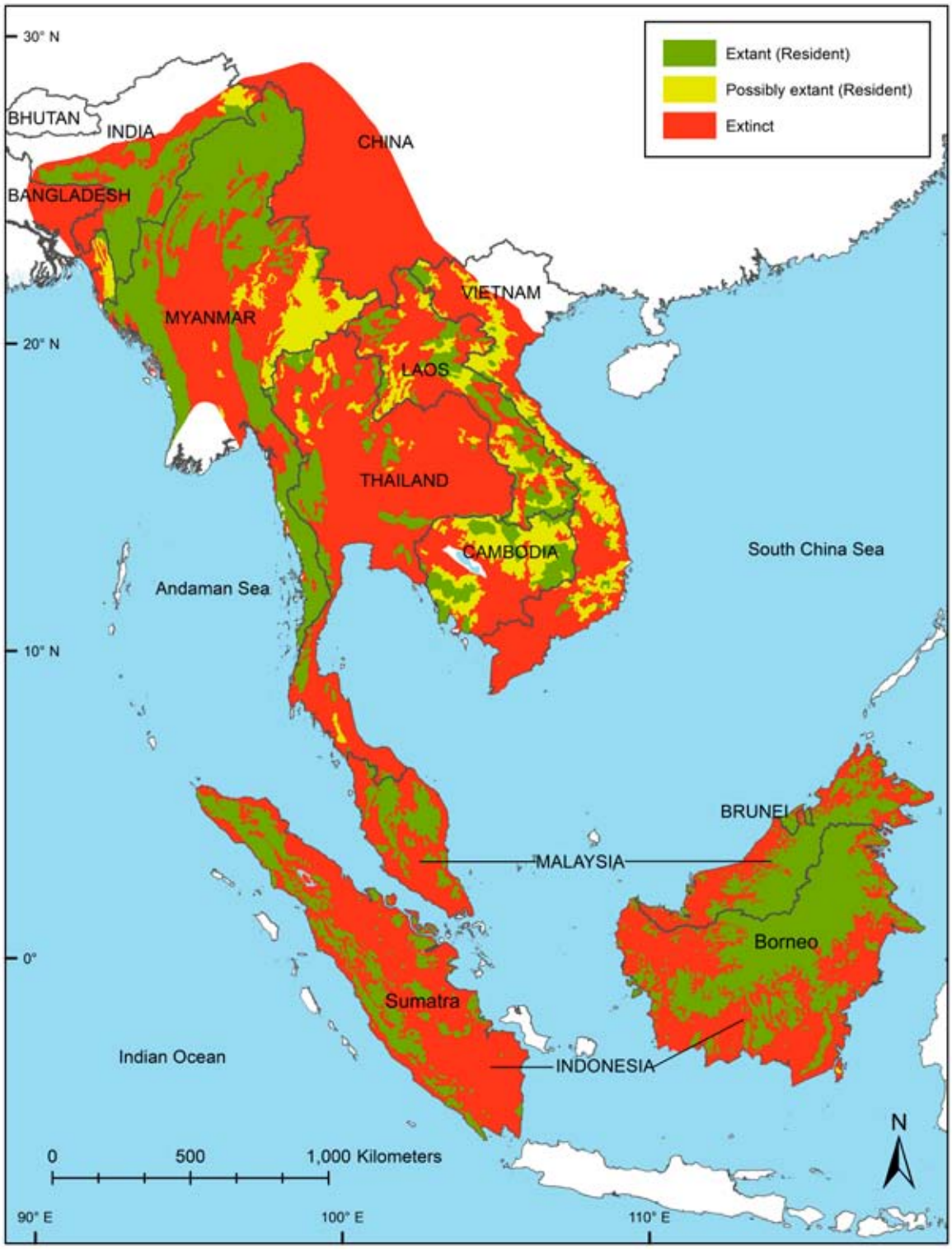


Figure 1. Range map of sun bears derived by country experts from presence data and extrapolations to surrounding suitable habitat. Possible range was defined as suitable habitat without confirmed presence. The relative amounts of range categorised as present versus possible varies by country in part due to differing amounts of presence data and in part to the degree to which country experts extrapolated those data based on their assumptions of habitat and threats. Extirpated range was defined as unsuitable range and no recorded presence.

SECTION 3

THE SUN BEAR CONSERVATION ACTION PLAN



Rescued sun bear at the Cambodian Bear Sanctuary.
Credit: Free the Bears

OVERVIEW

The following section outlines a range-wide conservation strategy and action plan for sun bears, for the period 2019 – 2028. This brings together the results of targeted discussions by workshop participants (Appendix I) at the 2017 Sun Bear Conservation Planning Workshop and the recommendations for actions that arose from those discussions. These discussions were informed by outputs from the preceding International Symposium on Sun Bear Conservation & Management, where an initial vision and operational goals were drafted, and where discussions of threats and conservation opportunities were captured and summarised (see Appendix II).

Over the two-day planning workshop, and following a series of scene-setting presentations, participants worked collaboratively on:

- **A VISION for the long-term future of sun bears;**
- **Operational GOALS which, if achieved, would realise the vision;**
- **The nature and dimensions of the ISSUES currently impacting the viability of the species across its range;**
- **A series of OBJECTIVES aimed at addressing these issues;**
- **ACTIONS to be taken in pursuit of these objectives, including recommendations on where and how each action should be taken and who would be best placed to take it.**

After discussing as a group all of the potential issues impacting on the viability of the species across its range, working groups were formed around the themes of: Trade and consumption; Habitat protection and improvement; Population monitoring; *Ex situ* management; and cross-sectoral collaboration. These themes ultimately became aligned with five operational goals. Working groups discussed the issues relevant to their theme with the aim of linking each issue to sun bear viability in the wild. Additionally, groups identified the underlying causes or exacerbating factors of each issue, wherever possible citing supporting evidence, clarifying assumptions and noting important information gaps.

Once issues were described, objectives aimed at addressing them were developed and brought to the wider group for discussion and prioritisation. Action steps were developed and recommended for 1, 5 and 10-year time-frames.

Results of the planning workshop were extensively fleshed out to create a draft document, which underwent a series of reviews and editing over several months, first by a core editing team, then each themed section was reviewed by the members of the relevant working group. Finally, the draft action plan was reviewed by participants of the symposium plus other sun bear biologists and conservationists who had been unable to attend the symposium.

The following summarises the outputs of these discussions and the agreed-upon Vision, Goals, Objectives and Actions.

Participants developed the following 25-year vision and goals for sun bear conservation:

Vision

Sun bears thrive as a functional component of all natural ecosystems in which they occur in each of the eleven range countries. Human societies coexist with wild sun bears throughout the range with political and cultural appreciation of their intrinsic value as living beings. Wild sun bear populations are no longer threatened. Captive sun bears are maintained under high welfare standards and contribute to conservation through advocacy, education, research, and where appropriate, release back to the wild. Conservation of sun bears aids in the conservation of other species and ecosystems in Southeast Asia.

Goals

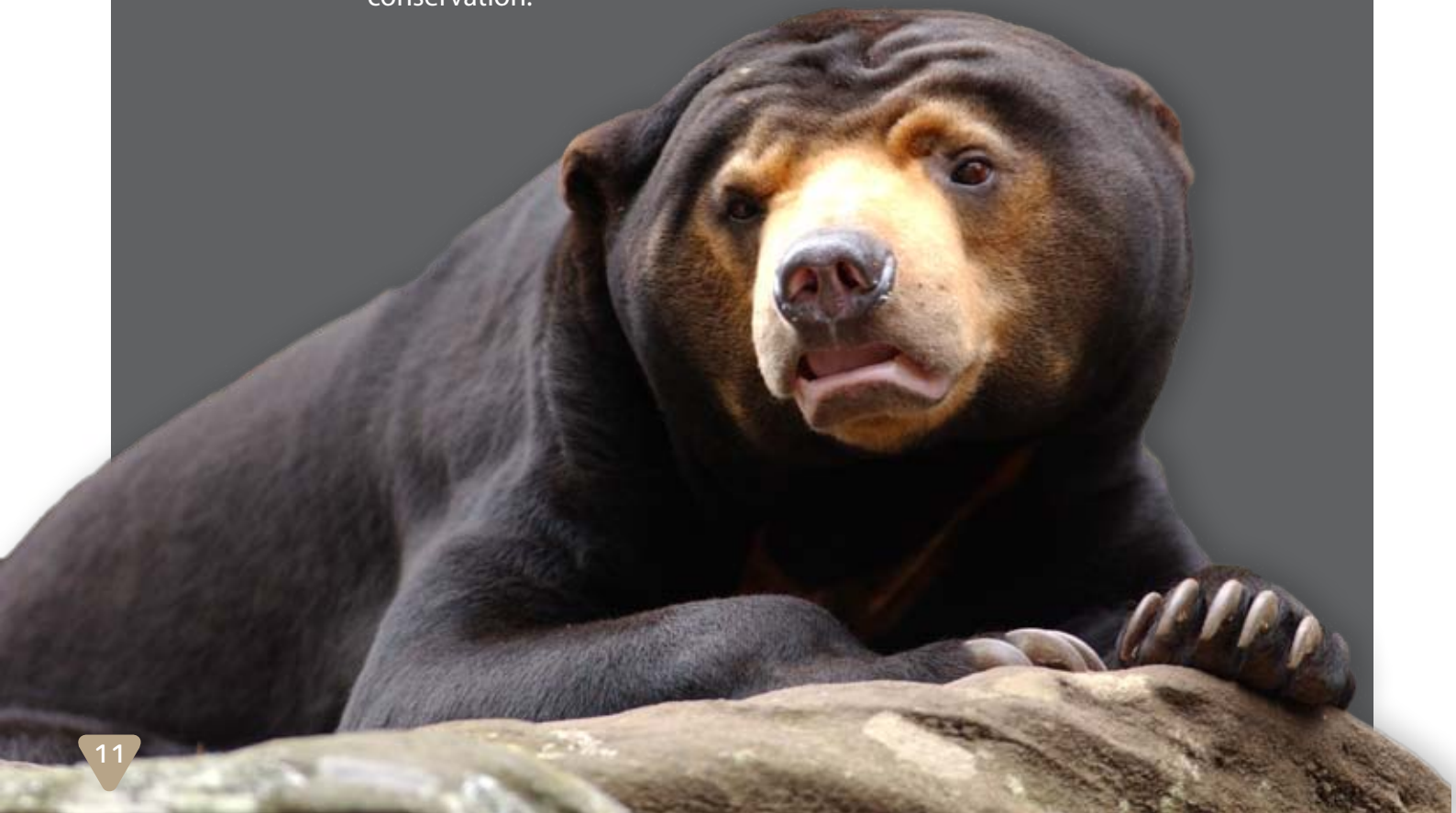
Goal 1. Eliminate illegal exploitation of sun bears.

Goal 2. Protect and restore sun bear habitats and populations across the species' natural range.

Goal 3. Devise and employ methods to reliably monitor trends in sun bear populations.

Goal 4. Maximise the contribution of *ex situ* sun bear populations to conservation.

Goal 5. Increase cross-sectoral support and collaboration for sun bear conservation.



GOALS, OBJECTIVES AND ACTIONS (ABRIDGED)

GOAL 1. ELIMINATE ILLEGAL EXPLOITATION OF SUN BEARS

OBJECTIVE 1. REDUCE DEMAND FOR SUN BEARS, THEIR PARTS AND PRODUCTS	
1.1	Conduct research to determine the main targets for, and design of, behaviour change and demand reduction interventions.
1.2	Design, implement, monitor and evaluate behaviour change and demand reduction interventions targeting key audiences and sources of demand.
1.3	Conduct research on the motivation for hunting sun bears.
OBJECTIVE 2. IMPROVE LAW ENFORCEMENT EFFECTIVENESS FOR LAWS PERTAINING TO HUNTING, TRADE AND USE OF SUN BEARS AND THEIR PARTS	
2.1	Advocate improvements to legislation and policies based on a review of the existing legal and policy regimes governing sun bears in all range states.
2.2	Monitor and investigate availability of sun bear parts and products along the trade chain to enable law enforcement action.
2.3	Raise awareness with law enforcement authorities and judiciary through a combination of training and outreach.
2.4	Monitor and investigate the illegal hunting of sun bears to enable law enforcement actions.
2.5	Develop non-PCR based forensic methods to detect illegal bear parts and derivatives in Traditional Medicine.
2.6	Collect baseline information to evaluate action taken to reduce hunting and trade of sun bears.

GOAL 2. PROTECT AND RESTORE SUN BEAR HABITATS AND POPULATIONS ACROSS THE SPECIES' NATURAL RANGE

OBJECTIVE 3. REVIEW DATA ON FOREST COVER AND ECOSYSTEM SERVICES TO PRIORITISE AREAS AND GALVANISE SUPPORT FOR CONSERVATION INTERVENTIONS	
3.1	Review existing policies in order to identify national targets and commitments pertaining to forest cover (loss/gain).
3.2	Quantify and compile current rates of forest loss by range state in order to identify and prioritise areas needing protection.
3.3	Identify and map ecosystem services beneficial to people derived from conservation of sun bear habitat.
3.4	Disseminate information about forest loss and ecosystem services losses to authorities and the public in order to stimulate interest in maintaining intact forest.
OBJECTIVE 4. IMPROVE ENFORCEMENT OF EXISTING LOGGING REGULATIONS	
4.1	Review existing regulations and identify parties responsible for enforcing regulations pertaining to logging.
4.2	Gain better understanding of site-specific violations of logging regulations, including who is violating these regulations and why.
4.3	Identify areas within sun bear range where illegal logging is having the greatest negative impact and effectively communicate findings related to where enforcement and capacity building is needed.
OBJECTIVE 5. IMPLEMENT EFFORTS TO SIGNIFICANTLY REDUCE HUMAN-CAUSED FIRES THAT DEGRADE SUN BEAR HABITAT	
5.1	Identify the locations, causes and timing of fire threats to sun bear habitat by country and area.
5.2	Identify gaps in enforcement that result in violators not being prosecuted for illegal burning, and build capacity to enable successful prosecution of violators.
5.3	Disseminate information on fire threat and damage to wider public.

OBJECTIVE 6. MAKE PLANTATIONS MORE BEAR-FRIENDLY HABITAT	
6.1	Examine regulations for plantations that relate to how bear-friendly they can be.
6.2	Implement small-scale pilot projects to test/monitor methods for improving sun bear habitat in and near plantations while monitoring changes in hunting/poaching resulting from habitat improvements in and near plantations.
6.3	Provide recommendations for more bear-friendly habitat guidelines to agricultural (oil palm, pulpwood, etc.) certification bodies for inclusion in their standards and expand implementation and further testing (adaptive management).
OBJECTIVE 7. RESTRICT ROAD AND OTHER INFRASTRUCTURE DEVELOPMENT INTO PRIORITY AREAS OF NATURAL SUN BEAR HABITAT AND MITIGATE EFFECTS OF EXISTING INFRASTRUCTURE	
7.1	Obtain all large scale development plans that could impact sun bear habitat in each range state.
7.2	Communicate with relevant donors and stakeholders regarding the effects of proposed development projects on sun bear habitat and lobby stakeholders to restrict development in target areas of sun bear habitat.
7.3	Monitor and evaluate strategies for reducing impacts of infrastructure development on sun bear habitat to determine which are most effective and why.
7.4	Assess the impacts of infrastructure development on sun bears and evaluate the efficacy of current mitigation measures in order to inform development of more effective mitigation measures (e.g. increased checkpoints, speed breakers, road signage, etc) in consultation with the development companies/operators.
OBJECTIVE 8. IMPROVE UNDERSTANDING OF WHAT CONSTITUTES HIGH QUALITY SUN BEAR HABITAT, AND HOW VARIOUS HABITAT COMPONENTS AFFECT SUN BEAR POPULATIONS	
8.1	Gather existing relevant information from published and unpublished sources regarding the sun bear's use of various natural and altered habitats.
8.2	Conduct research to fill gaps in information about assessing the quality of sun bear habitat, and defining highest quality sun bear habitats.
OBJECTIVE 9. PRIORITISE SITES FOR THE CONSERVATION OF SUN BEARS, AND ESTABLISH CONSERVATION TARGETS	
9.1	Identify where sun bear populations exist.
9.2	Develop criteria for the prioritisation of sites in terms of importance for conservation of sun bears.
9.3	Quantify and map protected forests and how they overlap with current sun bear distribution.
9.4	Identify portions of sun bear range overlapping with existing action plans and ongoing conservation actions for other species.
9.5	Identify priority areas that are most important to protect sun bears and establish targets for their protection.
OBJECTIVE 10. RECONNECT SMALL ISOLATED SUN BEAR POPULATIONS WITH HABITAT CORRIDORS	
10.1	Identify where habitat corridors are needed to connect small isolated sun bear populations.
10.2	Examine sun bear use of already existing potential corridors or degraded habitats between forest patches.
10.3	Prioritise need for corridors based on sun bear population status, threats, conservation value, feasibility, etc.
10.4	Consult with stakeholders to create site-specific spatial action plans; implement small-scale corridor development; and monitor sun bear use to inform recommendations for larger-scale implementation.

GOAL 3. DEVISE AND EMPLOY METHODS TO RELIABLY MONITOR TRENDS IN SUN BEAR POPULATIONS

OBJECTIVE 11. DEVELOP PROTOCOLS FOR MONITORING TECHNIQUES THAT RELIABLY DETECT POPULATION CHANGES FOR SUN BEARS	
11.1	Collect existing data to examine whether protocols can be established.
11.2	Establish test sites to compare various survey methods.
11.3	Explore use of camera trap by-catch data for monitoring sun bears.
OBJECTIVE 12. IDENTIFY KEY AREAS WHERE SUN BEAR POPULATION MONITORING AND TRAINING ARE NEEDED	
12.1	Identify areas where sun bear populations are likely declining or where conditions are changing.
12.2	Identify within each country the capacity to implement a monitoring programme.
OBJECTIVE 13. IMPLEMENT MONITORING PROGRAMMES AND EVALUATE RESULTS TO IDENTIFY WHERE CONSERVATION OF SUN BEARS IS SUCCEEDING AND WHERE IT IS NOT, AND WHY	
13.1	Provide recommended monitoring protocols to each range country.
13.2	Increase capacity for monitoring through training workshops.

GOAL 4. MAXIMISE THE CONTRIBUTION OF *EX SITU* SUN BEAR POPULATIONS TO CONSERVATION

OBJECTIVE 14. IN RANGE COUNTRIES, ENSURE LEGISLATION PERTAINING TO KEEPING SUN BEARS IS CLEAR, UNAMBIGUOUS AND SUPPORTS EFFECTIVE LAW ENFORCEMENT	
14.1	Conduct a comprehensive review of all existing laws pertaining to keeping sun bears in captivity, in all range states.
14.2	Conduct baseline surveys of captive sun bear populations in range states, highlighting regulatory violations and gathering additional evidence from published and unpublished sources.
14.3	Develop evidence-based recommendations for strengthening laws, regulations and enforcement with regard to captive sun bears.
14.4	Secure commitments from range state governments to improve laws and enforcement pertaining to captive sun bears, where needed.
14.5	Assess existing captive sun bear facilities to ensure these are compliant with laws and introduce ongoing monitoring programmes.
OBJECTIVE 15. IMPROVE THE QUALITY AND QUANTITY OF CONSERVATION-DIRECTED RESEARCH CONDUCTED USING *EX SITU* SUN BEARS	
15.1	Review past and current *ex situ* sun bear research projects to provide a baseline from which to identify conservation-relevant gaps and priorities.
15.2	Identify, assess the feasibility of, and prioritise, conservation-directed research needs for *ex situ* sun bears.
15.3	Develop a formal network of academic institutions and captive care facilities willing to collaborate on applied research programmes to improve cooperation, reduce duplication and address agreed priorities.
OBJECTIVE 16. ENSURE SUN BEAR RELEASE INITIATIVES ADHERE TO INTERNATIONALLY RECOGNISED GUIDELINES	
16.1	Develop methods for determining the conservation impact, and risk, of sun bear release projects.
16.2	Develop and publish guidelines for sun bear releases to provide advice on when and how to conduct a release project, and how to monitor, evaluate, adapt and where necessary terminate it.
OBJECTIVE 17. INCREASE EFFICIENCIES WITHIN *EX SITU* PROGRAMMES	
17.1	Clearly define roles and priorities of the regionally managed programmes for sun bears.
17.2	Evaluate, agree and implement the best format for international collaborative programmes for captive sun bears.
17.3	Build on existing collaborative networks to improve best practice sharing between sanctuaries, rescue centres, and good zoos.
17.4	Utilise *ex situ* facilities to provide information about sun bear ecology, populations, threats, and conservation measures.

GOAL 5. INCREASE CROSS-SECTORAL SUPPORT AND COLLABORATION FOR SUN BEAR CONSERVATION

OBJECTIVE 18. RAISE AWARENESS OF SUN BEAR CONSERVATION NEEDS AND THE ROLES THAT CAN BE PLAYED BY INDIVIDUALS, SOCIETY, AND THE PRIVATE SECTOR	
18.1	Engage with media to raise the profile of sun bear conservation.
18.2	Engage with industry, e.g. transport sector, Traditional Medicine community, logging and plantation companies, to increase the effectiveness of sun bear conservation efforts.
18.3	Engage with private sector and social influencers to ensure the use of sun bears, their parts and products is no longer considered socially, personally, or culturally acceptable.
OBJECTIVE 19. INCREASE EFFICIENCIES IN SUN BEAR CONSERVATION RESEARCH	
19.1	Identify priority *in situ* and *ex situ* research projects which would contribute to sun bear conservation.
19.2	Explore methods of facilitating research on identified priority projects which would contribute to sun bear conservation.



Sun bear in tree. Credit: David Garshelis



Sun bear mosaic. Credit: Free the Bears